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THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY, DIVISION OF MYCOLOGY AND DISEASE SURVEY
BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING
AGRICULTURAL RESEARCH ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Volume XXVIII May 22, 1944 Number 14

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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SURVEY OF THE MICROFLORA OF BARLEY SEED FROM MINNESOTA, NORTH DAKOTA, AND SOUTH DAKOTA

Ian W. Tervet

An analysis of barley seed grown in Minnesota and the Dakotas was made by determination of the microflora of 68 seed lots[1] and by the growing of seedlings of 27 of these seed lots. The microflora were cultured by the plating of 100 seeds of each lot, after surface sterilization, on acid potato dextrose agar (pH ± 4.0). The seed was disinfected by placing in a solution of 0.1% mercuric chloride and 0.3% Vatsol O. T. C. solution in water for 2 minutes, washing twice in tap water and then placing in a solution of 0.35% sodium hypochlorite and 0.3% Vatsol O. T. C. in water for 5 minutes. A preliminary test using a 5-minute soak in the sodium hypochlorite solution alone resulted in some of the seed lots becoming overgrown with Rhizopus nigricans, which developed from one or more seeds in most plates. The more severe sterilization with mercury and hypochlorite prevented the development of R. nigricans and apparently did not alter appreciably the development of Helminthosporium spp. or Gibberella saubinetii [G. zeae] the principal pathogenic fungi found on barley seed. Determination of the microflora was made after 10 to 14 days incubation at room temperature (± 24°C).

Germination tests were made by planting 100 seeds, treated with a surplus of Semesan Jr. (1% ethyl mercury phosphate) the excess being sifted off, and 100 seeds not treated in adjacent rows in a greenhouse maintained at about 25°C. The seeds were planted in sand that was not sterilized. Emergency counts and the number of healthy and diseased plants were determined 14 to 21 days after planting.

Summary of Results

North Dakota

Eleven seed lots obtained principally from the Red River Valley and northwest counties were examined (Figure 1). Helminthosporium spp. were the principal seed-borne pathogens, H. sativum being much more common than other species of this genus. However one seed lot from Renville County had 17% of the seeds infected with H. teres. Gibberella saubinetii occurred only on the samples in the southeastern part of the State, while Alternaria spp. were common on most seed lots. Seeds from the northwest sections were not infrequently infected with a species of Mucor and one seed lot, from Emmons County, had 22% of the seeds infected with Aspergillus spp. (Table 1)

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[1] The writer wishes to express his gratitude to the following men for their kindness in supplying the barley samples: Henry Putman of the Northwest Crop Inprovement Association; W. F. Buchholtz of South Dakota State College; and Jack Larson of the Minnesota Seed Laboratory; and R. C. Rose, Extension Plant Pathologist, University of Minnesota.

Table 1. Microflora of barley seed grown in North Dakota in 1943 and response in seedling stand and health to treatment of seed with ethyl mercury phosphate.

County of origin of seed lot	Percent seeds infected with fungi						Seedling Stand[c]			
	Helminthosporium spp.	Gibberella	Fusarium spp.	Alternaria spp.	Miscellaneous	Sterile	Not Treated: Total	Not Treated: Healthy	Treated: Total	Treated: Healthy
Cass No.1	91	11	1	0	0	0	73	40	91	91
Cass No.2	66	1	1	32	0	0	99	57	95	93
Cass No.3	69	0	8	9	0	14	83	56	93	90
Richland	55	9	9	21	4	2	82	33	98	98
Mountrail	16	0	0	17	0	67[a]	92	86	98	98
Renville No. 1	20	0	10	35	4	31	98	94	96	96
Renville No. 2	0	0	1	46	0	53[a]	98	91	95	95
Emmons	14	4	4	52	22[b]	4	87	76	91	90
Walsh	0	0	3	51	0	46	91	75	94	94
Williams	0	0	0	0	8	92[a]	97	91	94	85
Bottineau	0	0	0	67	0	33[a]	83	55	93	90

[a] Mucor sp. developed from many seeds.

[b] Aspergillus spp. principally A. niger and A. glaucus

[c] Actual seedling stand from 100 seeds planted per row.

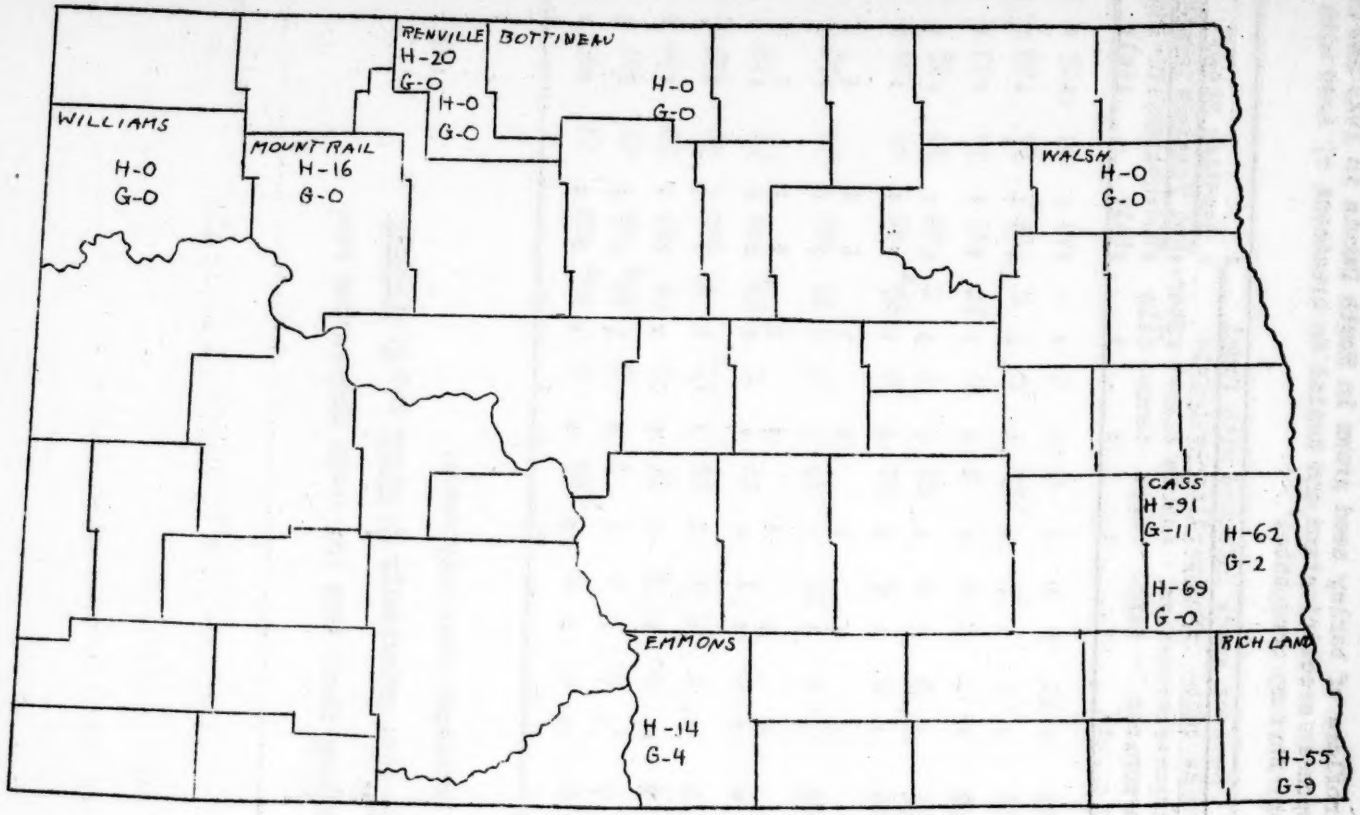

Figure 1. Source of barley seed lots infected with Helminthosporium sp. and Gibberella saubinetii in North Dakota represent percentage of seeds infected with Helminthosporium (H) and Gibberella (G). (See Table 1).

Table 2. Microflora of barley seed grown in South Dakota in 1943, and response in seedling stand and health to treatment of seed with ethyl mercury phosphate.

Variety and county of origin of seed lot	Percent seeds infected with fungi						Seedling Stand[c]			
	Helminthosporium spp.	Gibberella	Fusarium spp.	Alternaria spp.	Miscellaneous	Sterile	Not Treated: Total	Not Treated: Healthy	Treated: Total	Treated: Healthy
Atlas, Brookings	4	22	14	60	0	0				
Dryland Brookings	5	35	13	47	0	0				
Odessa Brookings	25	12	6	57	0	0				
Spartan, Brookings (av. of 3 seed lots	24	20	7	48	0	1				
Wis. No.38 Brookings	19	6	8	67	0	0				
Trebi, Brookings	4	78	10	8	0	0				
Dryland, Hyde	2	0	12	80	0	6				
Spartan, Hyde	25	0	8	32	8[a]	27				
Wis. No.38 Hyde	5	0	1	46	0	48				
Trebi, Hyde	4	1	1	42	0	52				
Trebi, Kingsbury	45	16	6	9	0	24	86	47	90	89
Trebi, Beadle	38	0	12	39	8[b]	3	74	20	84	81
Trebi, Grant	70	9	1	0	17[b]	3	70	34	89	84

[a] Eight percent of seeds gave rise to Nigrospora sphaerica

[b] Unidentified spp. of bacteria

[c] Actual seedling stand from 100 seeds planted per row.

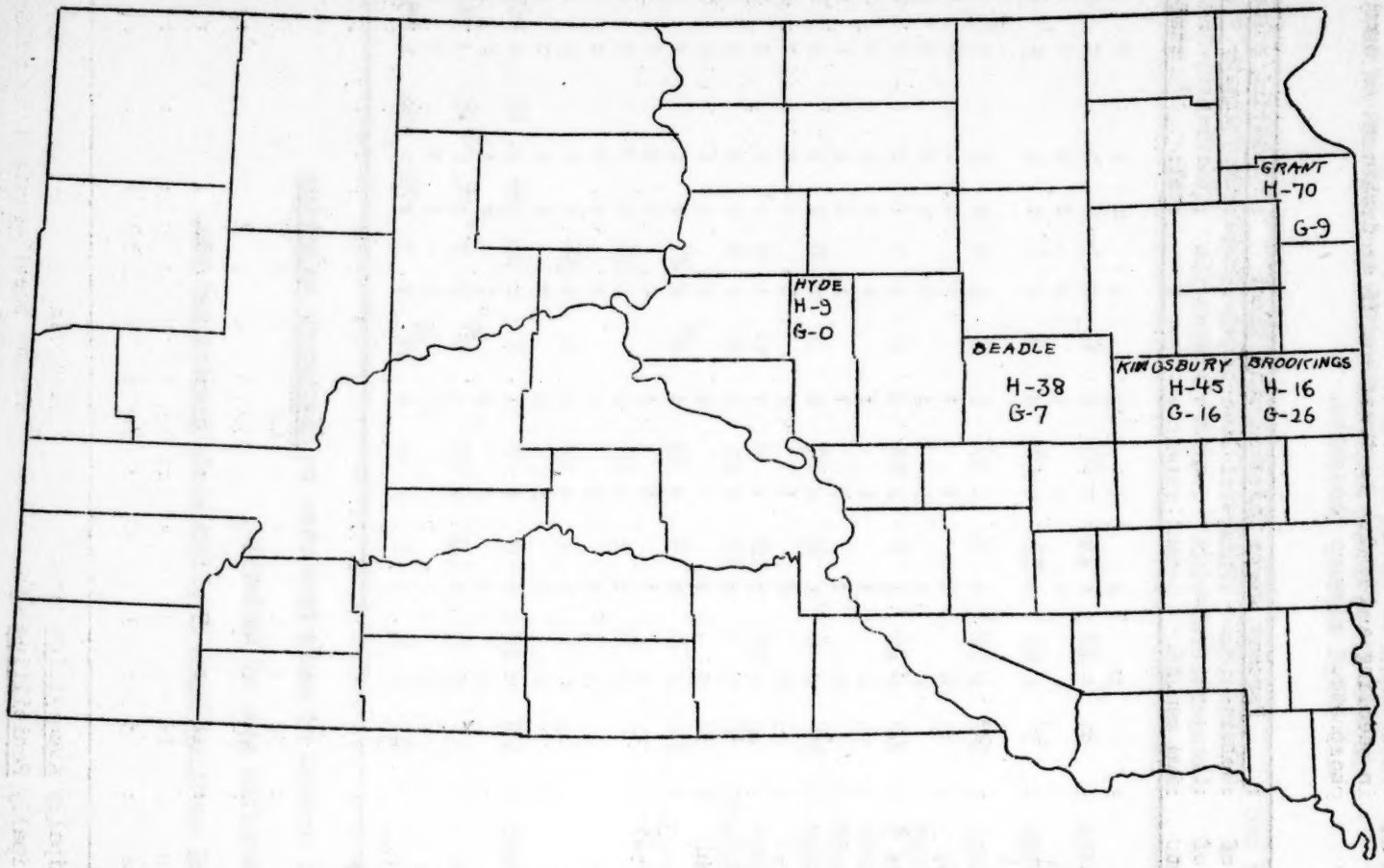

Figure 2. Source of barley seed lots infected with Helminthosporium sp. and Gibberella saubinetii in South Dakota. Numbers represent percentage of seeds infected with Helminthosporium (H), and Gibberella (G). (See Table 2).

Table 3. Microflora of barley seed grown in Minnesota in 1943, and response in seedling and health to treatment of seed with ethyl mercury phosphate.

County of origin of seed lots	Percent seeds infected with fungi						Seedling Stand[d]			
	Helminthosporium spp.	Gibberella	Fusarium spp.	Alternaria spp.	Miscellaneous	Sterile	Not Treated		Treated	
							Emergence	Healthy	Emergence	Healthy
Roseau	10	1	1	85	0	3				
Kittson	21	5	2	68	4	0	94	39	96	95
Marshall	23	1	0	63	7	6				
Polk (14 lots)	27	1	6	62	4	0				
Clay No. 1	28	4	4	60	0	4				
Clay No. 2	45	4	5	36	5	5	99	71	89	87
Becker	16	1	2	50	11[a]	20				
Wilkin	56	1	0	35	1	7	92	39	95	88
Ottertial	23	1	7	60	3	6	93	50	86	56
Stevens	78	11	3	2	9	3	83	20	90	86
Kandiyohi	32	14	0	44	9	1	84	21	82	82
Yellow Medicine (5 lots)	34	20	4	38	1	3	74	42	82	74
Lincoln	0	10	0	86	1	3				
Redwood	25	8	1	20	46[b]	0				
Brown	3	90	1	6	0	0	55	40	64	64
Rock	2	0	0	5	34[c]	59	93	82	93	90
Jackson	7	0	2	7	9	75				
Washington	55	2	0	20	17[a]	5	84	34	87	86
Hennepin	16	1	1	24	33[b]	25	94	71	97	97
LeSueur	11	23	3	61	0	2				
Goodhue	32	14	1	44	1	8	83	28	87	85
Steele	10	16	0	72	0	2				
Winona	14	9	2	50	12	14	97	86	93	93
Freeborn	18	2	1	73	0	6				
Fillmore	5	1	0	72	9	13				

[a] Principally Aspergillus spp.

[b] Principally Penicillium spp.

[c] Bacteria

[d] Actual seedling stand from 100 seeds planted per row.

Helminthosporium (H), and Gibberella (G). (See Table 2).

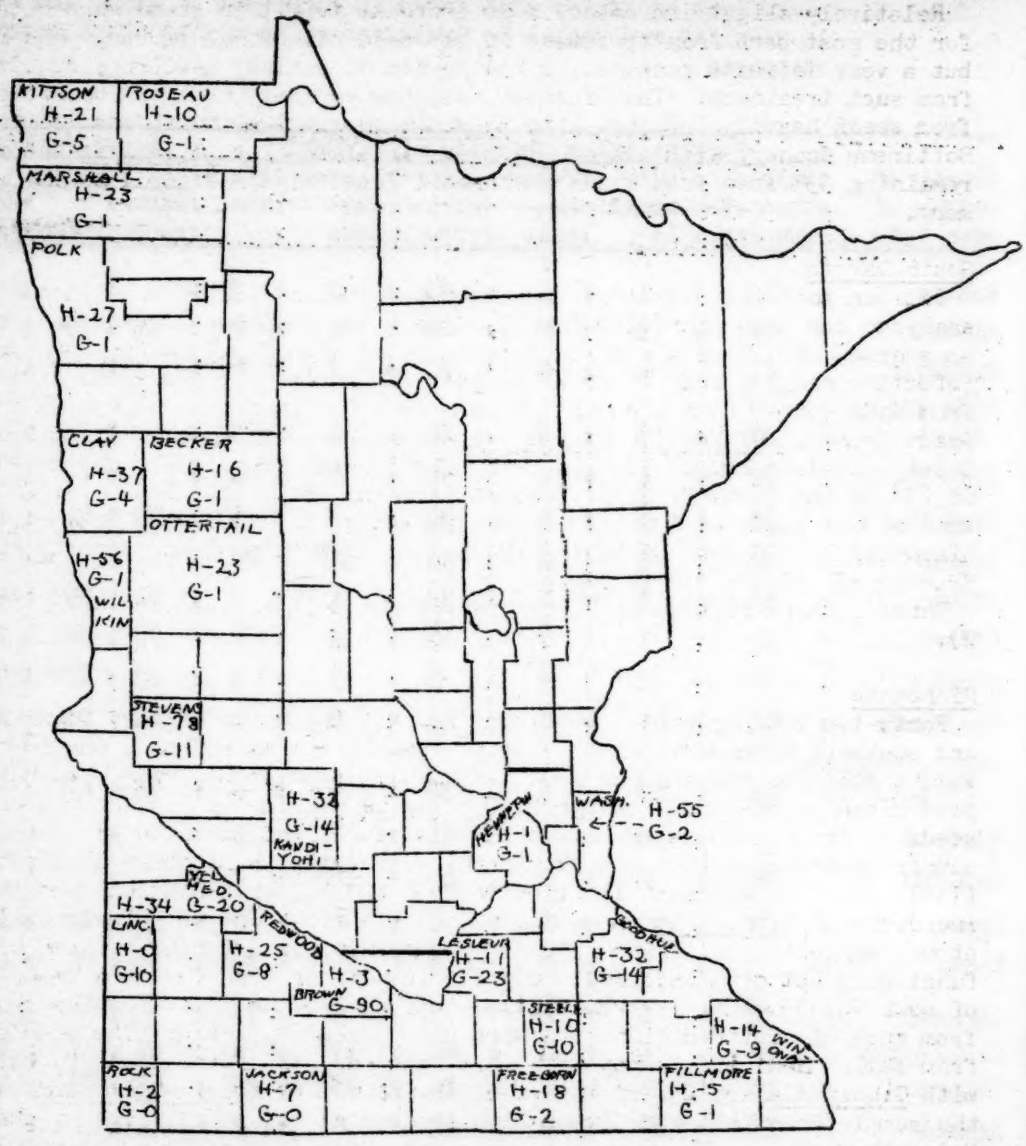

Figure 3. Source of barley seed lots infected with Helminthosporium spp. and Gibberella saubinetii in Minnesota. Numbers represent percentage of seeds infected with Helminthosporium (H) and Gibberella (G). (See Table 3).

Relatively slight increases or no increase at all in stand were obtained for the most part from treatment of the seed with ethyl mercury phosphate but a very definite response in the number of healthy seedlings resulted from such treatment. The greatest response to seed treatment was obtained from seeds heavily infected with Helminthosporium, although one lot from Bottineau County, with 67% of the seeds infected with Alternaria and the remaining 33% free from known pathogenic fungi responded well to the treatment.

South Dakota

Fifteen seed lots obtained from the east-central part of the State were analysed for seed microflora and 3 of them for response to seed treatment. An average of 18% of the seeds were infected with Helminthosporium spp., infection ranging from a low of 2% infected seeds on the Dryland variety from Hyde County to a high of 70% on a seed lot (variety not known) from Grant County. Gibberella saubinetii was most common on seeds from Brookings County, seeds from Hyde County being practically free from scab, an average of 13% of the seeds from all localities being infected. Seventy-eight percent of the seeds of Trebi from Brookings were infected with Gibberella, Wisconsin No. 38 with 6% having the lowest infection of any variety at Brookings. (Table 2, Fig. 2).

Three lots (varieties not known) responded well to seed treatment (Table 2).

Minnesota

Forty-two lots of barley obtained from the Red River Valley, from western and southern Minnesota (Fig. 3) were surveyed for microflora, and 13 of them were tested for response to seed treatment. Helminthosporium spp. were the predominant seed-borne pathogens; Gibberella saubinetii did not appear on seeds as frequently as one might have expected from the reports of the last summer on the severity of barley scab, especially in southern Minnesota (Table 3). The apparent conflict between reports on field scab and the incidence of Gibberella on seeds, as determined by the techniques outlined above, suggests that either the plating method for determining seed-borne fungi does not give uniformly accurate results, or else that the importance of scab was somewhat over-emphasized last summer, or that the seed samples from much of southern Minnesota were not of the 1943 crop. The seed sample from Yellow Medicine County with most scab had 33% of the seeds infected with Gibberella and 25% of the seeds infected with Helminthosporium, while the sample from Yellow Medicine with least scab had 10% Gibberella and 50% Helminthosporium. The heaviest infection of seeds by Gibberella was 90% on the sample from Brown County, indicating that the plating techniques used permitted abundant development of Gibberella.

Little increase in stand resulted from seed treatment but a very definite increase in the number of healthy plants was apparent from the treatment of the seed (Table 3).

Summary

Field observations on the distribution and severity of Helminthosporium head blight were amply confirmed by analysis of the seeds. Helminthosporium sativum was most frequently isolated, and most widely distributed. The

highest infection of H. teres was 17% for a sample from Renville County, North Dakota, and this species was not infrequently isolated from seed samples in the north section of Minnesota and North Dakota. Brachysporium sp. and other Helminthosporium spp. were occasionally isolated.

Gibberella saubinetii was isolated in greatest amounts from samples from the Minnesota valley region in Minnesota and eastern South Dakota. Surprisingly little Gibberella was obtained from the southernmost counties in Minnesota.

EMERGENCY PLANT DISEASE PREVENTION PROJECT, April 17, 1944.

DISEASES OF SMALL GRAINS OBSERVED IN MISSOURI

T. W. Bretz

In company with Mr. Ivar Twilde, State Barberry Eradication Leader, Bureau of Entomology and Plant Quarantine and Mr. J. Allison Denning, State Entomologist, Missouri Department of Agriculture, a survey for the incidence of diseases of small grains, principally the rusts, was made through the south-central, southwestern and west-central regions of Missouri during the week ending May 20. In the Texas-Shannon-Howell Counties area, native stands of Berberis canadensis were examined for possible stem rust (Puccinia graminis) infection. None was observed. At Mountain Grove (Webster County), however, an ornamental planting of Mahoberberis neuberti was found to be infected. Only a small percentage of the leaves showed lesions, a few of which had aecial cups developed to the extent that they were about mature enough to release spores.

WHEAT - The development of the wheat ranged from boot to heading stages in the south-central and southwestern areas and in west-central Missouri it was in the jointing stage. No stem rust (P. graminis) infection was found in the entire area. Leaf rust (P. triticina) [P. rubigo-vera var. tritici] infection was extremely light. Only after a rather extensive search could occasional leaf rust pustules be found and in some instances no infection whatever was observed. It would appear, on the basis of the low incidence of rust at this period in the development of the crop, particularly in the southern counties, that leaf rust will not be an important factor in reducing wheat yields this season. Speckled leaf blotch (Septoria tritici) was prevalent in all fields. The infection appeared to be somewhat more vigorous in the north-central area than in the southern counties. Loose smut (Ustilago tritici) was observed in a high percentage of the fields that were heading. Infection ranged from a trace to 10%. An estimate of the loss due to smut is not possible until more fields in the heading stage can be examined. Mosaic (virus) infection was observed in only one field, a creek-bottom field in Lafayette County. The infection was light and probably no commercial damage will result.

BARLEY - In general, the barley fields were in the boot to early milk stage of development. Only one field was observed in which the heads had

begun to fill. No stem rust (P. graminis) nor leaf rust (P. anomala) was observed in any of the fields examined. Loose smut (Ustilago nuda) was observed in about one-half of the fields, infection ranging from 1 to 3%. Covered smut (U. hordei) [U. jensenii] was also observed in about 50% of the fields, infection ranging from 0.5% to 2%. Powdery mildew (Erysiphe graminis var. hordei) was observed in a number of fields. Infection was light and in the early stages of development. Septoria leaf blotch (Septoria passerinii ?) was prevalent in one field but appeared to be causing little damage. An unidentified leaf spot (possibly spot blotch, Helminthosporium sativum) was generally distributed through one field but appeared to be of minor importance. No fruiting structures could be found upon microscopic examination of this material, preventing a positive identification.

RYE - The rye fields were in the heading stage, and appeared to be relatively free from disease. No stem rust infection was observed. In general only a trace of leaf rust (P. dispersa) [P. rugigo-vera var. secalis] was observed, although in one field which apparently had been pastured through the winter, 100% prevalence of rust was observed, showing 10 to 60% of the leaf blade areas involved. In one field anthracnose (Colletotrichum graminicolum) was generally prevalent on the leaf blades, but it appeared to be of minor importance. No evidence of ergot infection (Claviceps purpurea) was observed.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

DISEASES ON SMALL GRAINS IN MINNESOTA AND NORTH DAKOTA

Ian W. Tervet

Small grains in North Dakota. A survey of small grains was made in North Dakota during the week ending May 21, the writer being accompanied by F. Gray Butcher, Extension Entomologist and Plant Pathologist of the North Dakota Agricultural College. The area surveyed was from Fargo to Mandan south to Ft. Yates, west to Hettinger, then north to Williston, returning to Fargo, via Minot and Grand Forks.

The southeast section of the State is very wet, and spring planting has been delayed. Planting has progressed satisfactorily in the rest of the State. The central and western parts were very dry until the rains of May 14-21, which have improved crop conditions. Because of the heavy snow cover, planting in southwestern North Dakota was somewhat behind the other western regions, but practically all small grains were planted by the middle of May. Good stands of vigorous plants were the rule, only 2 wheat fields with seedling blight being seen. One of these fields, about 10 miles south of Mandan, had about 10% of the plants infected with seedling blight. Mesocotyls and coleoptiles of diseased plants were discolored. While information on the causal organism has not yet been obtained, the symptoms resembled the disease resulting from the attack of Helminthosporium spp. The second field of diseased wheat was found in Nelson County near Petersburg. Somewhat more than 10% of the plants were infected with basal stem

rot. Occasional plants had leaf spots typical of H. sativum, and these plants invariably were severely injured by stem and root rot. Many quackgrass rhizomes were on the soil surface. It is possible that this grass had been infected with H. sativum in 1943 and furnished part of the inoculum this spring.

Very few Flax fields were seen, but a variety test near Regent, in Hettinger County, afforded an opportunity of comparing the stands of several flax varieties. Good stands were obtained with Koto, Royal, Walsh, Victory, and North Dakota #5128, while Renew and Viking gave poorer stands.

Small grains in western Minnesota. Continued wet weather has delayed the planting of much of the spring grains in western, central, and southern Minnesota. All fields of seedling Wheat and Barley examined in Clay, Wilkin, and Traverse Counties in western Minnesota and from Morris, east to the Twin Cities, were free from seedling blight.

Flax especially in the western counties, where the land is slow to dry, was chlorotic. No evidence of any pathogen was seen, the chlorosis being due to the wet state of the soil. Two fields of flax in western Minnesota were found to be severely injured by seedling blight. One in Wilkin County, was sown with Buda flax. This variety had about 30% of the plants chlorotic with reddish brown discolorations on the tap root. Many of the seedlings were dying. A second field, planted to Victory flax and separated from the Buda by a strip of barley about 30 feet wide, seemed free from seedling blight. While isolations from diseased roots have not yet given information as to the fungi present, it is thought possible that the blight might result from Colletotrichum lini. The second occurrence of seedling blight on flax was seen in southeast Traverse County. Here 4 varieties: Koto, Biwing, Royal, and Crystal, were being grown in one field. Excellent stands of vigorous plants were obtained with Koto, Biwing, and Royal, but a very poor stand resulted with Crystal, only about 20% of that of the other varieties. The farmer had reported that the Crystal flax had been killed by frost, but the lack of injury on the other varieties as well as the presence of reddish-brown lesions on the surviving seedlings indicated that seedling blight, possibly Colletotrichum, was responsible.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

WHEAT DISEASE SURVEY IN KANSAS

Stuart M. Pady

In company with Dr. H. Fellows a wheat disease survey was made May 17-21, through 28 eastern, south-central, western, and north-central counties of Kansas. Approximately 5000 acres were examined between May 17 and 21. In the southern half of the State most of the wheat is in the boot stage but a few fields are heading.

The most conspicuous feature of this survey was the presence of leaf rust (Puccinia rubigo-vera var. tritici) in 22 counties. Distribution is very general except in the extreme west. Only a few pustules could be found in any one field and considerable search was required in order to find these.

The sori are practically all on the upper leaves and appear to have just broken through the epidermis. The warm weather since May 11 has evidently permitted rapid development and it is estimated that most of the infections are less than a week old. At the present time it would seem as if damage from leaf rust will not be severe.

Speckled leaf blotch (Septoria tritici) has developed rapidly in the last 2 weeks, and is causing considerable damage in some fields. In the eastern Counties of Shawnee, Jefferson, Douglas, and Franklin the amount has increased from 2 to 8% (based on estimates of secondary infections on living leaves). In 14 central counties the amounts range from 5 to 20%, averaging 11% in 34 fields, except in Kiowa, Ford, and Gray Counties where the amounts ranged from 20-50%, averaging 38%. In 4 of these fields readings taken May 2 gave a trace; readings made May 19 in the same fields showed a striking increase in amount to 35%. From Garden City west and north almost to Goodland the wheat is poor and most fields record a trace except in the occasional fallowed field making good growth; here the percentage is about 5%. In the northern part of Sherman and Thomas Counties and the western edge of Gove County, the wheat is in good condition but only a trace of Septoria was found.

Loose smut (Ustilago tritici) was observed in a few fields in southern counties where the wheat is beginning to head. Leaf spot (Helminthosporium) is widely distributed but only a small amount is present in individual fields. In one field in Riley County a trace of powdery mildew (Erysiphe graminis) was found. Take-all (Ophiobolus graminis) was beginning in a field in Saline County. In a field in Dickinson County yellowing of the leaves was very conspicuous, beginning as small yellow flecks which enlarge and coalesce; the leaf turns yellow and later brown at the tip.

The symptoms suggest that this belongs to one of the mosaic diseases, although it appears to be distinct from yellow mosaic.

The following diseases on Rye (200 acres) were also noted: Septoria leaf blotch (Septoria secalis), leaf rust (Puccinia dispersa) [P. rubigo-vera var. secalis], bacterial blight (Phytomonas translucens var. secalis) [Xanthomonas translucens f. sp. secalis].

On winter Barley (100 acres) loose smut (Ustilago nuda), covered smut (Ustilago hordei) [U. jensenii] and stripe (Helminthosporium gramineum), occurred in small amounts.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

SHORTER REPORTS ON DISEASES OF CEREALS

DISEASES OBSERVED ON BARLEY AND WHEAT IN OHIO: Numerous fields of Wheat were examined for the presence of rusts in Franklin, Madison, Pickaway, Fairfield, Hocking, and Licking Counties. No trace of rust was found.

In all of the fields examined leaf spot (Helminthosporium sativum) was present but of no economic importance.

Two fields of winter Barley were examined. A trace of rust (Puccinia anomala) was found in one field. Spot blotch (Helminthosporium sativum) was common in both fields but causing no loss. In one field powdery mildew

(Erysiphe graminis) was heavy and may reduce the yield. Stripe (Helminthosporium graminoum) was found on a few plants. Loose smut (Ustilago nuda) was causing less than a 1% loss.

Weather conditions during this period, May 15 to 20, have been favorable to the development of many diseases. Temperatures were fairly high and there were local thundershowers daily. -- M. R. Harris, Emergency Plant Disease Prevention Project.

RUSTS AND SMUT ON OATS, AND RUST OF CORN, IN TEXAS: Crown rust (Puccinia coronata) was found in apparently early stages of infection on Oats in Milam County. Leaf and stem rust (P. graminis) was common and doing some damage in Travis, Hays, Comal, and Bexar Counties. Stem rust infection appeared to be causing serious damage in the 2 latter counties. Traces of loose smut (Ustilago avenae) were found in many fields in these areas.

On Corn, a few pustules of corn rust (Puccinia sorghi) were observed in a small planting near Robstown. -- George E. Altstatt, Emergency Plant Disease Prevention Project. May 5-17.

REPORTS ON DISEASES OF FORAGE LEGUMES AND GRASSES

ALFALFA LEAF SPOT IN NORTH DAKOTA AND MINNESOTA: In North Dakota the area surveyed was from Fargo to Mandan south to Ft. Yates, west to Hettinger, then north to Williston, returning to Fargo, via Minot and Grand Forks. Little winter injury on alfalfa was observed, and no diseases were seen on this crop except in the Red River Valley. Leaf spot, Pseudopeziza medicaginis, was found in all alfalfa fields from Nelson County east to Grand Forks and south to Fargo.

Excellent stands of alfalfa were seen in western and central Minnesota. Pseudopeziza leaf spot occurred in most plantings but had not developed sufficiently to cause measurable injury. -- Ian W. Tervet, Emergency Plant Disease Prevention Project. Week ending May 21.

DISEASES ON ALFALFA IN OKLAHOMA: Plantings of alfalfa totaling 125 acres were surveyed during the period May 1 to May 15. Blackstem (Ascochyta spp.) was observed in Canadian, Creek, McCurtain, and Blaine Counties. In one planting near Geary (Blaine County) leaf infection was present as well as the stem lesion stage of the disease. A loss of 10% of the plants was estimated in this field.

Rust (Uromyces striatus var. medicaginis) infections were observed in several plantings. Heavy infection of the lower leaves was noticed in a 25-acre planting near Idabel (McCurtain County). -- Howard W. Larsh, Emergency Plant Disease Prevention Project.

DISEASES IN ALFALFA PLANTINGS IN IDAHO AND EASTERN OREGON: During the week of May 7 to 13 a great many alfalfa fields were examined in the area between Adrian, Oregon, and Kimberly, Idaho. Stands in general were poor. In most cases of poor stands there was good evidence of bacterial wilt

[Corynebacterium insidiosum]. Wilted and dead plants were very evident in certain fields. In general, farmers claimed that stands lasted usually from 3 to 5 years, mostly dying out in 4 years. Downy mildew [Peronospora trifoliorum] was prevalent in the lower Snake River Valley even on 1-year stands, and apparently some damage was resulting. Virus-like diseases (mosaic) were usually widespread but only in traces. White spot [non-parasitic] was found on a few plants in 2 fields only. In Elmore County some fields showed severe loss from witches'-broom [virus]. The only previous report of the occurrence of this disease in Idaho was from the same county in 1925. The disease was not found elsewhere. One grower attributed it to Fusarium wilt following potato crops.

Of special interest was the common occurrence of extreme variations in size, vigor, type, and color of plants and leaves. This was true of all-aged stands in all areas surveyed. It would appear that, considering all factors encountered in the survey, a great deal of work is needed to give farmers seed of alfalfa of a desirable type and wilt-resistant. Interest in this problem was expressed by practically all the growers interviewed.

During the period May 14 to 20, alfalfa fields were surveyed in Bingham, Bonneville, Bannock, Minidoka, Jerome, Elmore, Ada, Canyon, and Washington Counties. Bacterial wilt was found in all counties in amounts ranging from a trace to severe. The disease had not been recognized previously in Bonneville County, but certain fields examined in the New Sweden district west of Idaho Falls showed extensive wilting of plants and reduced stands. In Bingham County it was reported that in one area some 20- to 35-year-old alfalfa stands had "gone out" almost completely during the past 3 or 4 years. Wilt has been the principal cause.

Fields near Weiser (Manns Creek area) show severe loss in stands and wilted plants are very prevalent.

Witches'-broom was noted in a field at Glenns Ferry. Bacterial blight [Pseudomonas medicaginis] was causing considerable stem injury in plantings near King Hill. Leaf spot [Pseudopeziza] was found rather generally on the lower foliage. Downy mildew, although very spotted in occurrence, seemed to be causing more damage than realized previously. Virus diseases (mosaic type) were usually very minor although considerable variation in occurrence between fields was noted.

White spot was noted in small amounts in 4 fields, the most severely affected being a 1943 seeding in Ada County.

Several undetermined troubles were noted and follow-up examinations are planned. -- Earle C. Blodgett, Emergency Plant Disease Prevention Project.

ASCOCHYTA CANKER ON AUSTRIAN WINTER PEAS IN OKLAHOMA: Ascochyta canker (presumably A. pisi) caused loss of 20% of the plants in a 5-acre planting examined in Payne County. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

LEAF SPOT ON BROME GRASS IN MINNESOTA: All fields of brome grass seen in central and western Minnesota were infected with Helminthosporium bromi, but loss from this leaf spot was light. Great variation in the response of individual plants was noted, some plants being stunted with most of the leaves chlorotic, while adjacent plants frequently were not infected. -- Ian W. Tervet, Emergency Plant Disease Prevention Project. Week ending May 21.

DISEASES REPORTED ON COTTON AND TOBACCO

DISEASES OF COTTON IN LOUISIANA AND MISSISSIPPI: A small percentage of soreshin (Corticium sp.) [Rhizoctonia solani] was found in all of the 10 large fields surveyed in Avoyelles and Rapides Parishes in Louisiana during the period May 15 to 20. A trace of angular leaf spot (Bacterium [Xanthomonas] malvacearum) was found on cotyledons of plants in 2 fields near Meeker.

The anthracnose fungus (Glomerella gossypii) was isolated from spotted cotyledons of cotton collected in Walthall County, Mississippi, last week (see PDR, preceding issue). -- Douglas C. Bain, Emergency Plant Disease Prevention Project.

COTTON DISEASES IN TEXAS: Angular leaf spot was observed in Atascosa, San Patricio, and Lavaca Counties.

Cotton root rot (Phymatotrichum omnivorum) was killing young plants in the southwest area of Nueces County. The plants have not begun to blossom in this area.

Fusarium wilt (F. [oxysporum f.] vasinfectum) was encountered occasionally in cotton in San Patricio County. -- George E. Altstatt, Emergency Plant Disease Prevention Project. May 5-19.

ANGULAR LEAF SPOT AND DAMPING-OFF OF COTTON IN OKLAHOMA: Cotton plantings totaling 175 acres were surveyed during the period May 1 to 15. Angular leaf spot was present on the cotyledons in several plantings, the most severely infected plants noted being in the Fort Towson area (Choctaw County). In each instance where cotyledons were infected, no seed treatment had been used.

Pre-emergence and post-emergence damping-off (Rhizoctonia solani) reduced the stand 15% in a 50-acre planting in Choctaw County. Damping-off was observed in several other plantings, but loss was never greater than 2 or 3%. -- Howard W. Larsh, Emergency Plant Disease Prevention Project.

TOBACCO DOWNY MILDEW IN VIRGINIA: The first verified report of blue mold downy mildew, [Peronospora tabacina] in the State was on April 26 in Pittsylvania County, although 2 county agents state that the disease was reported to them 2 days earlier. A survey of 6 southern counties on May 10 and 11 revealed that the disease was present in at least 80% of the beds, although few plants had yet been killed. By May 15 practically 100% of the beds were affected. In 22 plantbeds examined, an average of 41% of the plants were infected. Because the growing season is late many of the plants are small, and it is probable that great damage will be done unless weather conditions change rapidly.

Only an occasional farmer is making any attempt to control the disease. Where beds have been fumigated with P.D.B. good control has been obtained. Most growers have a tremendous oversupply of plants and are confident that there will still be plenty when blue mold has disappeared from their plantbeds. -- Edward K. Vaughan, Virginia Agricultural Extension Division.

DOWNY MILDEW AND BACTERIAL LEAF SPOTS IN TOBACCO SEEDBEDS IN TENNESSEE: Tobacco seedbeds were re-checked in the Greeneville, Tennessee, area. Most of the plants were nearing transplanting size with some already in the field. At the time of my earlier survey, April 24 to 28, most of the plants had leaves dime size or less.

Seventy-seven beds consisting of about 5400 square yards were observed. Wildfire, Pseudomonas tabaci, was present on 400 yards, about 7.5% of the area, and was severe on about 300 yards.

Blue mold, Peronospora tabacina, was found on 336 square yards, about 60%, of which 330 yards occurred at one location in a series of beds in a woods intermingled among old bed sites. At both locations hydrated lime was applied when the disease was first observed. Blue mold was first seen by the County Agent in the Greeneville area on May 12 but it was present a few days before that date.

Angular leafspot, Pseudomonas angulata, was present in slight amounts in 7 beds. A trace of mosaic was found in one bed. Fertilizer burn was found occasionally. Only about 15% of the beds observed had been treated at some time for either the leaf spot diseases or blue mold although both sprayers and excess spray materials were availabe. -- R. A. Hyre, Emergency Plant Disease Prevention Project. May 6 - 18.

NEMATODE SURVEY IN GEORGIA

A. L. Taylor

During the first three weeks of May, 1944, vegetable plants grown in the vicinity of Tifton, Georgia, were examined.

In this area, about 4000 acres are used for the growing of vegetable plants. The greatest part of the acreage is used for tomatoes and cabbage, but lettuce, peppers, eggplant, and sweetpotato plants are also produced. The great bulk of the plants is shipped by rail or truck in large lots, but there is also a growing business in small lots of plants shipped by parcel post. The territory served includes a large portion of the eastern United States.

The soil used is mostly sandy loam of the Norfolk series. Cabbage is planted early in the year and tomatoes and other vegetables are planted at intervals from late February to May. This year operations have been somewhat hindered by excessive rains. The shipping season is now reaching its peak.

The danger of shipping plants infected with the rootknot nematode, Heterodera marioni, and other diseases has long been recognized and a system of certification has been organized under the direction of the Georgia Department of Entomology. This Department has formulated regulations covering all phases of the business including seed treatment, planting, spraying, and use of the land when plants are not being grown. The regulations having to do with control of the rootknot nematode require that the land shall not have been used for crops highly susceptible to rootknot for at least 3 years previous to the planting of tomatoes. An exception ismade in the case

of fields used for certified tomato plants during the preceding 1 or 2 years if the plants were free of rootknot and bacterial wilt, and if such fields were plowed or disced immediately after pulling the tomato plants and maintained in bare fallow for the rest of the year or planted to velvet beans, crotalaria, or peanuts. Most, but not all, of the tomato plants produced in this section are grown under certification.

A large number of plants were examined in the various packing houses. Rootknot infection was found on about one-third of the lots of plants examined, but there was a very large difference between certified and uncertified plants. On certified plants only a bare trace of infection was found on 3 lots of plants of more than 20 lots examined. Of 5 lots of uncertified plants examined, 2 lots had 10% and 50% light rootknot infection, while 50% of the plants in a third lot had a moderate to heavy infection and there was a light infection on most of the rest.

Roots of tomato plants collected at the packing houses and the adhering soil were also examined for nematodes. Free living nematodes of the genus Dorylaimus were found to be rather numerous and species of the genera Rhabditis, Cephalobus, and Acrobeles were also found. No lesions that might have been caused by the meadow nematode, Pratylenchus pratensis, were found, nor was this species found in the soil samples examined.

One lot of cabbage plants was found to have about 5% of the plants lightly infected with rootknot and a lot of lettuce plants had a 75% moderate infection. On investigation, it was found that these plants came from the same 4-acre field, which also contained infected beets. No rootknot was found in about 40 acres of cabbage plants belonging to the same grower, nor were several other lots of cabbage and lettuce plants examined in the packing houses found to be infected.

Pepper, eggplant, and sweetpotato plants examined were not found to be infected by nematodes.

Apparently the methods of control for the rootknot nematode adopted by the State Department of Entomology are fairly effective. Only occasionally is it necessary to revoke the certification on a field because of excessive infection. It is also apparent that uncertified plants are often capable of infecting soil in regions where the rootknot nematode does not naturally occur.

Recommendations

1. The use of chemicals for control of rootknot nematodes and for soil fungi and bacteria would eliminate the necessity of frequent changes in the fields used for growing vegetable plants.

2. Education of the users of tomato plants as to the danger of rootknot would result in their refusal to purchase infected plants and quickly result in the disappearance of such plants from the market.

3. More careful inspection of the plants by the growers would be greatly to their advantage in the long run.

4. Studies should be made to determine exactly what happens when rootknot-infected plants are set out in the North. Some evidence is available to indicate that the tomato crop is damaged, but it is not known whether nematodes from this section can thrive under other climatic conditions.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

DISEASES REPORTED ON POTATO, TOMATO, EGGPLANT, and PEPPER

RHIZOCTONIA ON POTATO IN RHODE ISLAND: A preliminary survey was made of potato fields for Rhizoctonia solani infection in the early potato sections of Rhode Island. Potatoes in the Little Compton, Tiverton, Newport, Kingston, Slocum, and Charlestown areas are in all stages of growth from just recently planted to plants 4 or 5 inches in height; in most fields, however, the plants are just breaking through the ground, and in general it was a little too early for accurate Rhizoctonia readings. Twenty-one fields were found in which counts could be made and of this number 11 fields showed some Rhizoctonia infection.

In 4 fields 1 or 2 infected sprouts were found, read as a trace of "rhizoc". In 4 fields from 3 to 5 infected sprouts were found, read as slight. In 3 fields 2 or 3% of the plants dug showed infection, read as moderate. On the whole, this should be considered very light "rhizoc" infection but allowance must be made for the fact that readings were taken 10 days too early for optimum conditions. -- Robert C. Cassell, Emergency Plant Disease Prevention Project. May 14 - 20.

POTATO DISEASES IN LOUISIANA: Surveys during the period May 15 to 20 were made in the truck-growing area below New Orleans (St. Bernard and Plaquemines Parishes), in the Alexandria and Bunkie areas (Rapides and Avoyelles Parishes), and at Houma (Terrebonne Parish).

An outbreak of potato blackleg (Erwinia phytophthora) occurred in a field of 10 to 12 acres near Pointe au Chien in Terrebonne Parish; practically no potatoes were harvested from this field. This is the second outbreak of blackleg observed in Louisiana this year; the first was observed by Dr. L. H. Person and Dr. E. L. LeClerg in Pointe Coupee Parish several weeks ago. A considerable amount of late blight (Pythophthora infestans) and a trace of blackleg were noted in and around Alexandria. A trace of rugose mosaic (virus) was also found in this area. -- Douglas C. Bain, Emergency Plant Disease Prevention Project.

POTATO DISEASES IN TEXAS: Southern blight (Sclerotium rolfsii) has been observed attacking potatoes in the light soils of Brazos and Atascosa Counties. In Atascosa County infection was heavy and some fields showed severe damage by hail which had occurred earlier in the season.

Spindle tuber (virus) was seen in a small planting in Brazos County. -- George E. Altstatt, Emergency Plant Disease Prevention Project. May 5 - 17.

POTATO DISEASES IN OKLAHOMA: Potato plantings totaling 1350 acres were examined during the period of May 1 to 15.

Owing to the unusual wet weather, blackleg is fairly prevalent in Oklahoma. A loss of 20% of the stand was observed in one 5-acre planting in Pottawatomie County and another in LeFlore County.

Early blight (Alternaria solani) was observed in Choctaw, McCurtain, LeFlore, and McIntosh Counties. Leaf infections were present in nearly every field surveyed. In most instances, with the exception of the lower leaves, little loss resulted.

Black scurf or Rhizoctonia canker (R. solani) was observed in many of the plantings surveyed, the amount of infection varying from a trace to nearly 15%. Loss of 15% of the plants resulted in a 5-acre planting in Choctaw County; in many instances the stalks had been completely girdled.

Mild mosaic was the most widespread of all the potato virus diseases observed. Infection varied from a trace to 30% in the Red River Valley of Choctaw and McCurtain Counties, with an average infection of 5%. Rugose mosaic was observed in most plantings examined; in one planting in LeFlore County 15% infection was observed. The most severe infection of leaf curl observed was 5% in a planting in Choctaw County. -- Howard W. Larsh, Emergency Plant Disease Prevention Project.

REPORTS ON TOMATO DISEASES: Douglas C. Bain reported from Louisiana that early blight (Alternaria solani) was generally distributed in several tomato fields surveyed below New Orleans. Heavy infection was observed in 2 fields.

Fusarium wilt (F. oxysporum f. lycopersici) was observed by George E. Altstatt on 5% of one planting near Poteet in Atascosa County, Texas.

DISEASES ON EGGPLANT AND PEPPER IN FLORIDA: Vegetable plantings west of Stuart in Martin County on the East Coast were examined on February 23, including a number of small plantings, totaling 11-1/2 acres on 3 properties, of eggplant. All but 1 acre were of a peculiar small, slender variety called Italian eggplant grown for express shipments to Italian markets in the North. In a 1-acre planting on one property where many of the plants had been bought, Phomopsis blight (P. vexans) was estimated to have caused a loss of 40% of the plants, and was said to have been worse on the purchased plants than on those raised by the grower. All the older diseased plants had been removed and replanted. On another farm only a single bush in a 2-acre planting of Italian eggplant showed Phomopsis. On a third property where Italian eggplants were grown exclusively, a 5-acre planting showed 30% plant loss from Phomopsis and some wilting and dying of tips. This planting had stopped bearing apparently because of drought and was scheduled to be plowed up. In another 3-1/2-acre planting on the same farm Phomopsis had caused extensive wilting and dying back of the shoots, and also considerable fruit rotting, mostly at the calyx end, but little plant girdling. The grower reported that he had received some complaint of fruit rot in transit due to Phomopsis.

A trace of leaf spot (Cercospora capsici) was noted in pepper plantings totaling 7 acres on one farm. -- Arthur S. Rhoads, Emergency Plant Disease Prevention Project.

OTHER REPORTS ON DISEASES OF VEGETABLE CROPS

REPORTS ON BEAN DISEASES: Douglas C. Bain reports that rust (Uromyces phaseoli var. typica) was observed on plants in several fields in Plaquemines Parish, Louisiana. The Black Valentine pole bean (so identified by the grower) seemed to be considerably more susceptible to the rust than did the bush bean. Powdery mildew (Erysiphe polygoni) was noted on all plants in one large field in the same area (May 15 - 20).

According to George E. Altstatt, mosaic (virus) infection was extensive in string beans in Bexar and Atascosa Counties, Texas (May 5 - 17).

Howard W. Larsh reported root canker due to Rhizoctonia solani causing loss of nearly 1% of the plants in a large planting in LeFlore County, Oklahoma (May 1 - 15).

DISEASES ON BROAD BEAN IN LOUISIANA: Ascochyta sp. was found on stems, pods, and leaves of plants observed in St. Bernard Parish (see PDR, Apr. 15, p. 346). Bacterial blight (? Bacterium [Xanthomonas] phaseoli) appears to be generally distributed throughout the southern part of the State. -- Douglas C. Bain, Emergency Plant Disease Prevention Project. May 15 - 20.

DISEASE AND INJURY ON GARDEN BEET: Early infections of leaf spot (Cercospora beticola) were observed in Cherokee and Tulsa Counties, in Oklahoma, by Howard W. Larsh. At least 25% of the leaf area was destroyed on the most severely infected plants. (May 1 - 15).

In several large plantings of garden beets for seed examined by Lytton W. Boyle in Linn County, Oregon, the stand was poor. In each instance it was found that the roots were salvaged from an excess planting for canning beets last season. The original plan had been to grow only the fresh beets. The excess left in the field without protection was finally used for seed planting. It appears as if the injury during the winter was followed by a dry rot. Since this was limited to the crown, it was not readily evident and many of the affected roots had been planted without very careful selection. (Apr. 28 - 29).

BOLTING OF CABBAGE IN FLORIDA: Winter cabbage plantings at Hastings and Palatka were found to have been all harvested when these areas were visited from May 1 to 4. Unlike the plantings farther south in central Florida, this crop proved to be a dismal failure in general as much of it went to seed instead of heading. According to the county agent at Palatka, 90% of 2000 acres planted in that section went to seed. One grower with 42 acres was said not to have sold a head. In the Hastings section, where between 4 and 5 thousand acres were planted, at least 1500 acres were said to have gone to seed. One enterprising grower was reported to have cut the leaves from a 40-acre planting and marketed them as collards, thereby recovering the cost of his planting. -- Arthur S. Rhoads, Emergency Plant Disease Prevention Project.

DISEASES ON CABBAGE AND RADISH IN OKLAHOMA: Leaf spot (Alternaria brassicae) [presumably black leaf spot, A. circinans] was observed in all of the cabbage plantings surveyed, totaling 15 acres, but was causing very little damage. Black rot (Phytomonas [Xanthomonas] campestris) caused a loss of 2% of the plants in a 3-acre planting in McIntosh County. Downy mildew (Peronospora parasitica) was observed in McCurtain, McIntosh, and Tulsa Counties, but infection was never more than 5%.

A trace of root rot or Rhizoctonia canker (Rhizoctonia sp.) was observed in 2 plantings of radishes in Tulsa County. An undetermined leaf spot was causing considerable yellowing and spotting of the leaves, but it appeared late in the season and caused very little commercial loss. -- Howard W.

Larsh, Emergency Plant Disease Prevention Project. May 1-15.

VIRUS-LIKE TROUBLES OF CRUCIFEROUS SEED PLANTS IN IDAHO: Attention was directed to 3 unusual conditions on turnip seed plants at the Parma Branch Station, May 4. One plant seen was affected with a mottle and vein-clearing, apparently a mosaic-like disease. Several plants noted showed a dwarfed condition, often with mild to severe leaf deformities. The leaf blades were elongated, narrow, rough-edged, and silvery in appearance. The flower stalks often curled around and the flowers were blasted. In severe cases no seed would be produced. This also appeared to be virus-like in nature. Another condition appeared as a white spotting of the leaves with spires or coarse hairs arising on the upper surface from the white spots. It was sometimes associated with blasted flowers. This was considered to be due to some genetic factor.

May 5 and 6 were spent in the area from Parma to Payette, Idaho, and from Ontario to Adrian in adjacent Oregon, principally in mustard and rutabaga seed fields, carrot seed, and alfalfa fields. The crucifer seed fields in all the areas showed traces to rather common occurrence of the leaf deformity. Although this factor is minor at present, it might become serious. Stands and conditions varied greatly. Aphids were present in a few fields, and in many, traces of considerable injury by a stem larva were noted. The infested plant stems wilted and died and a soft slimy rot followed. Extreme yellows, wrinkled leaves, and dwarfing were noted in mustard and shepherds'-purse plants in some of the cruciferous seed fields. The diseases were not identified.

During the following week, many turnip and rutabaga seed fields in the area between Adrian, Oregon, and Kimberly, Idaho, were examined. No leaf spot disease of any kind was noted, but in most fields of turnip and in some rutabaga fields there were traces of a leaf deformity characterized by long, narrow, uneven-margined leaves often distorted, and dwarfed stalks. Many of the blooms blasted. The trouble appeared to be virus-like in nature. Variegation of the leaves was noted on a few plants. In general, stands were good, but winter injury had reduced and destroyed some plantings, and soil conditions affected plant growth considerably in patches or areas.

In many fields, certain plants were wilted down with severe stem rotting. It was found that some insect larva had probably been the primary cause. -- Earle C. Blodgett, Emergency Plant Disease Prevention Project.

DISEASES OBSERVED ON CABBAGE AND CAULIFLOWER IN WESTERN OREGON: In plantings of cabbage examined in Lincoln County, April 21, gray leaf spot (Alternaria brassicae) (Macrosporium herculeum) was noted but was not of primary importance, while ringspot (Mycosphaerella brassicicola) was very prevalent, on older leaves of bolting plants near Logsden. No evidence of ringspot lesions was found on the stalks of upper leaves where greater damage to the seed crop would be caused. Ringspot was not evident at Nashville. Clear-cut symptoms of the vein-banding type of mosaic (virus) were evident on only a trace of the plants at Logsden; while near Nashville prevalence in different fields and in different parts of large plantings varied from a trace to 10%. Only traces of downy mildew (Peronospora parasitica) were evident; the fungus was not fruiting to any extent in the lesions.

Oedema (nonparasitic) and gray pock (undetermined) were noted near Nashville in a seed crop in a large field where seepage from a nearby hill drained along the rows. Oedema occurred on the upper leaves of occasional bolting plants. Gray pock-like lesions appeared to start as small water-soaked spots on the older leaves. The mesophyll then became necrotic and the epidermis separated, forming the gray pock-like lesions. Bacteria were evident in some of the lesions, but not consistently enough nor in sufficient numbers to be suspected as the primary cause. It is probable that the excess moisture and periods of cold may have been the primary factors in the development of the lesions. Symptoms of certain soil deficiencies were also evident in this planting.

Blackleg (Phoma lingam) was reported by Dr. P. W. Miller and Dr. F. P. McWhorter as occurring in Benton County on leaves of cabbage in experimental plantings grown from seed introduced from other States.

In cabbage plantings examined in Douglas County, May 2, ringspot was prevalent in the seed crop but was limited to the lower leaves of the seed stalks. Downy mildew and gray leaf spot were prevalent on the basal leaves of the stalks. In one field a small percentage of fasciated stalks were observed, about 5 inches in width and about 3/8 inch thick at the base. The condition occurred more frequently in this field than in any other noted this season. The field had been sown for a fresh cabbage crop and when no market was found, allowed to stand. When observed during February the heads were solid and large, and Botrytis was very prevalent on the heads. By comparison with other fields, it seems probable that the fasciation might have resulted from resistance encountered by the growing points and consequent irritation as the plants bolted through the large rather solid heads.

Gray leaf spot was prevalent in cauliflower plantings examined in Douglas County, but apparently had caused no significant loss in the crop. During the early part of April bacterial soft rots developed on cauliflower and losses in shipments were large in some instances. The rot was aggravated by extended periods of wet weather. Losses as high as 35 to 50% were reported after shipment in refrigerated cars for 4 days. The occurrence of gray pock-like lesions was noted on cauliflower, correlated with an excess moisture supply as noted above for cabbage. -- Lytton W. Boyle, Emergency Plant Disease Prevention Project.

REPORTS ON DISEASES OF CARROTS: George E. Altstatt reports southern blight (Sclerotium rolfsii) observed at College Station, Brazos County, Texas. (May 5 - 17).

Carrot and parsnip seed fields examined by Earle C. Blodgett in the area from Parma to Payette, Idaho, and from Ontario to Adrian in adjacent Oregon showed from 30 to 90% stands, the most common cause of injury being rots in the roots, either Botrytis or Sclerotinia (May 5 - 6).

DISEASES ON CUCURBITS: Powdery mildew (Erysiphe cichoracearum) was widely distributed on patty-pan squash in St. Bernard and Plaquemines Parishes in Louisiana; in some fields considerable damage was evident, according to Douglas C. Bain. What appeared to be angular leaf spot (Bacterium [Pseudomonas] lachrymans) was generally distributed on plants in all cucumber fields seen in Plaquemines Parish. (May 15 - 20).

George E. Altstatt reported that a trace of Fusarium wilt (F. [oxysporum f.] niveum) was seen in watermelon fields near Poteet in Atascosa County, Texas (May 5 - 17).

REPORTS ON DISEASES OF LETTUCE: Drop (Sclerotinia sp.) has been serious in some frames of lettuce, both romaine and head types, in Nassau County on Long Island, New York, according to F. M. Gordon. One grower sustained a 75% loss of romaine in frames; another about 25% of field set head lettuce in part of one section. (Weekly News Letter, May 22).

Howard W. Larsh reports loss of 5% of the plants in a small planting in Tulsa County, Oklahoma, due to crop or watery soft rot (Sclerotinia sclerotiorum). Aster yellows (virus) infection was observed in 3 plants. (May 1 - 15).

Drop was already apparent in about 10% of the plants in early plantings of lettuce examined in Lane and Marion Counties, Oregon, by Lytton W. Boyle. According to the growers, this is earlier than it usually appears in these plantings. Premature heading of the early crop resulting in poor heads was apparently due to an extended cool wet period during the first part of April. Yields may be reduced to nearly one-half of normal. Traces of what appeared to be big vein (virus) were evident in plantings in these counties, but further study will be necessary to verify the nature of this trouble (May 3 - 5).

LEAF SPOT OF OKRA IN TEXAS: Leaf spot (Cercospora althaeina) was present but not doing serious damage west of San Antonio in Bexar County. -- George E. Altstatt, Emergency Plant Disease Prevention Project. May 5 - 17.

SMUT AND DAMPING-OFF OF ONIONS IN MASSACHUSETTS: Early counts were made for onion smut (Urocystis cepulae) in seed onions 1 to 2 inches tall in the Connecticut River Valley of Hampshire and Franklin Counties. These are onions seeded thickly to be harvested as "sets". In most fields the plants were not large enough to examine for smut, but 20 fields were sufficiently advanced to get counts. Fields seeded with untreated seed ranged from 10 to 60% smutted plants. Fields seeded with treated seed ranged from no smut to 30% with an average of less than 1% smutted plants. Readings for the 20 fields are as follows: 6 fields, no smut; 9 fields, less than 1% smutted plants; 1 field 18%; 1 field, 25%; 1 field, 32%; and 1 field, 60%.

Damping-off caused by Fusarium sp. was found in only 2 of the 20 fields. Only a trace was present in one field, but about 35% of the plants were lost in the other. -- Robert C. Cassell, Emergency Plant Disease Prevention Project. May 14 - 20.

OTHER REPORTS ON ONION DISEASES: In the 175 acres of onions surveyed in Oklahoma, according to Howard W. Larsh, the only appreciable loss observed was in a 3-acre planting in Tulsa County where 100% of the sets, which had been purchased from a trucker, were destroyed by bacterial soft rot (Erwinia carotovora) (May 1 - 15).

Lytton W. Boyle reports that most fields of onions examined by him in Lane and Marion Counties in Oregon appeared to be in excellent condition. One field in Marion County showed a poor stand of about 85%. The bulbs in

many cases were badly decomposed, Fusarium rot being most evident, but the appearance of the roots suggested that pink root (Phoma terrestris) was also present. (May 3 - 5).

COTTON ROOT ROT AFFECTING PARSLEY IN TEXAS: Cotton root rot (Phymatotrichum omnivorum) was doing some damage to parsley north of Robstown in Nueces County - - George E. Altstatt, Emergency Plant Disease Prevention Project. May 5 - 17.

PARSNIP: See above under carrot.

REPORTS ON PEA DISEASES: On Long Island, New York, peas are making good growth generally, with the earliest Gradus beginning to bloom. In all fields mosaic in some degree has been found (H. C. Huckett, Weekly News Letter, May 22).

Traces of downy mildew (Peronospora viciae) [P. pisi] were noted on the lower leaves of vines in Marion County, Oregon. As yet no damage to the crop is apparent (Lytton W. Boyle, Emergency Plant Disease Prevention Project. May 3 - 5).

DOWNY MILDEW ON SPINACH IN FLORIDA: A few isolated small vegetable plantings south of Coral Gables in Dade County were examined on February 29. A 3-1/2-acre planting of spinach was observed in which downy mildew (Peronospora spinaciae) [P. effusa] had proved troublesome. The grower reported that while this disease had given considerable trouble earlier in the season, it appeared to have become inactive since the weather had become warmer. The mildew was said to have largely disappeared from the leaves, which were claimed to have "greened up" considerably in the last 2 to 3 weeks. The affected leaves still appeared quite yellow but only the older leaves showed dead areas. Part of this planting was being cut about 5 weeks after it had reached the cutting stage. In the plants that were being cut about 50% of the leaves were being stripped in order to secure a product that would be acceptable to the local markets. -- Arthur S. Rhoads, Emergency Plant Disease Prevention Project.

DISEASES OF SPINACH IN OKLAHOMA: (1800 acres surveyed). White rust (Albugo occidentalis) was observed in Wagoner, Muskogee, Sequoyah, and LeFlore Counties. Infection varied from a trace in fields in Wagoner County, to nearly 50% in fields in Muskogee and LeFlore Counties.

Blue mold (Peronospora spinaciae) [P. effusa] was present in every field surveyed. Infections fluctuated from 5% to over 75%. Considerable loss was sustained in plantings in the Muskogee and Spiro areas.

Pin head rust (Heterosporium variabile) was nearly as prevalent as blue mold. Plants in all stages of development were attacked. None of the varieties seeded was resistant to Heterosporium leaf spot. The infection varied from a trace to over 50%; the more severe infections, in all instances, were present on more mature spinach. Nevertheless, young spinach was not free of this disease.

Mosaic (blight) [virus]-infected plants were observed in most of the plantings surveyed. In one instance, in Muskogee County, nearly 75% of the

plants were infected. Several large plantings in LeFlore County had infections of nearly 25%.

Plants showing symptoms characteristic of curly top (virus) were observed in Muskogee and LeFlore Counties. In no instance was the infection greater than a trace; only an occasional affected plant being found.

Rootknot (Heterodera marioni) was observed in 2 plantings (Tulsa and Muskogee Counties). In each case spinach had been seeded on sandy soil and loss in each field was more than 25%. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

A CHLOROSIS OF SPINACH IN OREGON: Spinach observed in several localities in Linn County appeared to be in good condition, except in one instance where the cotyledons were chlorotic. This condition was quite uniform over the field except in a few spots. No organisms were evidently associated with the trouble and symptoms were limited to the cotyledons. It is suspected that some local soil or environmental factors such as cool temperatures and excess moisture are responsible. The soil was loose and by pressing it firmly water could be brought to the surface in parts of this field. -- Lytton W. Boyle, Emergency Plant Disease Prevention Project. Apr. 28-29.

DISEASES ON SWEETPOTATOES IN OKLAHOMA: Nine large commercial hotbed plantings were surveyed, as well as several beds used exclusively to grow home-used slips.

Black rot (Ceratostomella [Endoconidiophora] fimbriata)-affected slips were observed in Okfuskee, McIntosh, and Creek Counties. Nearly 5% of the slips in one large hotbed, in Okfuskee County, were infected. In 2 beds "seed potatoes" with black rot had been bedded.

Soft rot (Rhizopus sp.) was observed in several of the beds. Prolonged wet weather hindered the proper maintenance of the hotbeds and conditions conducive to soft rot infections prevailed.

Two percent of the plants in a large "seed bed" in Okfuskee County were infected with rootknot nematode (Heterodera marioni) -- Howard W. Larsh, Emergency Plant Disease Prevention Project.

REPORTS ON FRUIT DISEASES

APPLE DISEASES OBSERVED IN OKLAHOMA; Apple plantings totaling 125 acres were surveyed.

Mushroom root rot (Armillaria mellea) was observed near Durant (Bryan County) where it had destroyed 3 trees of the Delicious variety. The rhizomorphs were identified as characteristic of Armillaria mellea by Dr. W. W. Ray.

Leaf and twig infections of apple blotch (Phyllosticta solitaria) were observed on the variety Ben Davis (Adair County), Yellow Transparent (McCurtain County), and Delicious (Bryan County). Ben Davis was infected nearly 100%; that is, every twig and water sprout contained at least one blotch canker.

Black rot (Physalospora obtusa) leaf spots and twig cankers were observed on 3 trees in a small orchard near Broken Bow, (McCurtain County).

Leaf infections of scab (Venturia inaequalis) were observed in orchards in Bryan and Cherokee Counties. Excessive rain, early in the growing season, prevented orchardists from spraying at the proper time. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

APPLE SCAB AND OTHER DISEASES IN OHIO: The scab fungus (Venturia inaequalis) was found north of Columbus on May 17. In orchards that were properly sprayed the fungus appears to be under control.

In unsprayed orchards in Hocking County fireblight (Erwinia amylovora) is quite destructive on both apples and pears. The frog-eye spot of apple leaves (Physalospora obtusa) was beginning to appear on the leaves and the fungus was fruiting on numerous twig lesions. -- M. R. Harris, Emergency Plant Disease Prevention Project. May 15 - 20.

FIREBLIGHT ON PEAR IN OKLAHOMA: Five trees of the Duchess variety were severely attacked by the fireblight organism (Erwinia amylovora) in McCurtain County. Other infections were observed on scattered plantings of the Bartlett variety in Bryan and McCurtain Counties; in each instance only 3 to 5 trees were in the plantings. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

DISEASES REPORTED ON PEACHES AND PLUMS IN OKLAHOMA: Peach orchards containing 225 acres were surveyed. Bacterial spot (Phytomonas [Xanthomonas] pruni) was observed in nearly every orchard. Oozing cankers were observed in an orchard near Perkins (Payne County).

Young peach trees affected by crowngall (Phytomonas [Agrobacterium] tumefaciens) were observed in plantings in Bryan and McCurtain Counties. In each instance only a few trees were observed by the writer infected with the crowngall organism; however, it is reported to occur fairly commonly in these counties.

Blossom, twig, and fruit infections of brown rot (Sclerotinia [Monilinia] fructicola) were observed. In several orchards in Bryan, Choctaw, and McCurtain Counties all 3 manifestations of brown rot were apparent and considerable killing of the fruit spurs was resulting.

Leaf curl (Taphrina deformans) was the most prevalent disease of peach in Oklahoma during the latter part of April and early May, infection ranging from 10% to nearly 100% of the leaves attacked. Orchards that received a late dormant spray (early March) showed 20 to 30% infection.

Mosaic (virus). Two trees were observed having symptoms of peach mosaic in Bryan County near Durant and Mead, Oklahoma.

Brown rot was causing appreciable damage to plum fruits in all of the trees surveyed. Unsprayed plum trees in Bryan and McCurtain Counties were heavily infected with plum pockets (Taphrina pruni), resulting in a loss of 50 to 75% of the fruit. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

PEACH DISEASES IN OHIO: A 5-acre orchard showing numerous fruit mummies of brown rot infections of last year was carefully examined for the presence of the disease this year. Numerous old but seemingly active twig lesions were found. However, none were sporulating. No apothecia

were found growing out of the mummies and no blossom or young fruit rot was observed.

Several commercial orchards were examined for the presence of leaf curl. None was found on any sprayed trees but it is commonly present on unsprayed roadside trees. -- M. R. Harris, Emergency Plant Disease Prevention Project. May 15 - 20.

DISEASES ON BRAMBLE FRUITS IN OKLAHOMA: Plantings of blackberries, raspberries, boysenberries, and young berries totaling 15 acres were surveyed during this period.

Blackberry and boysenberry canes were observed infected with anthracnose (Elsinoë veneta). In a planting of blackberries near Durant (Bryan County) anthracnose was observed killing the terminal growth of nearly all of the canes. Boysenberry canes near Stilwell (Adair County) had scattered small lesions due to anthracnose.

Blackberry bushes in the Durant area were severely infected with orange rust (Gymnoconia peckiana). In many instances most of the leaves had been killed.

Leaf spot (Septoria rubi) infections were observed in nearly all of the bramble plantings surveyed. Very little damage was being done by these infections at the time of this survey. -- Howard W. Larsh, Emergency Plant Disease Prevention Project. May 1 - 15.

DISEASES OBSERVED ON STRAWBERRY AND GRAPE IN TEXAS: Chlorosis (alkaline) was prominent on strawberries near Poteet in Atascosa County, and leaf spot (Mycosphaerella fragariae) was common in the same area.

A trace of Armillaria root rot on grapes was found in a vineyard near Pleasanton, in the same county. -- George E. Altstatt, Emergency Plant Disease Prevention Project. May 5 - 17.